maker prefers black ash which has been exposed to the wind and sun. The best ash for his purpose is obtained from a wood-lot which is open and dry. Next to this he prefers isolated trees near a forest. He does not use black ash of the "black ash swamps," for, he says, "the grains are too thin and the wood is not as tough."

The structure of the ash determines its mode of splitting under heavy blows. It divides at the lines of demarcation of the annual layers. Here are to be seen, upon microscopic examination, large dotted ducts, whose open mouths are quite evident to the naked eye, in cross section.

The earliest mention of the ash and other trees in this section of Western New York, that I know of, may be found in a handbill issued by Joseph Ellicott, November 26th, 1800, (and quoted in Turner's History of the Holland Purchase), viz: "Those who prefer land timbered with black and white oak, hickory, poplar, chestnut, wild cherry, butternut and dogwood, or the more luxuriant, timbered with basswood, sugar tree, white ash, wild cherry, cucumber tree—a species of magnolia—and black walnut, may be suited."

I am indebted to a botanical friend, Miss L. A. Weld, for the drawings.—CHARLES E. FAIRMAN.

Astringent qualities of Heuchera and Mitella.—It is well known that astringency is a common property in the Saxifrage family, and in the west, *Heuchera hispida* Pursh., *H. cylindrica* Dougl., and *H. parvifolia* Nutt., are well known by the hunters, prospectors and others who lead a wandering life. These plants are all very astringent and are successfully employed in cases of diarrhœa of all degrees of severity. This complaint is very troublesome and all the more so on account of its liability to occur at any time. This is particularly the case in alkali regions where the water one has to drink is so bad as to bring on this sickness in a few hours. Of course no drug stores are at hand, but by a little search one can usually find one or another of the species mentioned, H. parvifolia being the commonest species in Northern Montana. Any one troubled with the complaint mentioned can, by chewing a small portion of the root and swallowing the juice, quickly relieve himself. Or where the dried root is used, some people carrying a supply wherever they go, a decoction is often made, but is very disagreeable to take. The great trouble with alum root is that if one takes only a little too much sudden constipation comes on and has been known to last for days, often causing dangerous symptoms.

We have tried several native roots at different times while far away from human habitations and have found that the root of *Mitella pentandra* Hook. is far superior to alum root. It is milder and slower in its action and besides being mildly astringent possesses a bitter principle which acts as an appetizer, as we have demonstrated to our perfect satisfaction

on several occasions. The last time we employed it was in the case of a young man who had been troubled with diarrhœa for three weeks. During the last week of the period the complaint was coupled with severe indigestion and total loss of appetite. Having nothing at hand to give him we broke off the root from a botanical specimen of Mitella pentandra and divided it into two parts of about ten grains each. He chewed and swallowed one piece on the spot (about 9 A. M.) and ate the remainder at 11 A. M. Before noon he actually complained of great hunger and spoke with evident relish, to our amazement, of what he expected to have for dinner. We saw him again at 2 P. M., and he felt much better, telling us how he had enjoyed his dinner. The next morning we saw him again, and he was well in every respect, having a good appetite and digestion, his bowels being free and regular in their action. Now this man had been sick, and looked sick, for three weeks, yet that little bit of root made him well in less than twenty-four hours. We would not say that such decided results would take place in every instance, but, as mentioned before, we have used the root of this plant on several occasions with beneficial results. By accident we discovered the good quality of the plant in question. It is our custom to taste every root we find new to us, and that is the way we found out. Thinking this might be new to the public, and that the knowledge of it might be of practical value to others, we submit these remarks to the readers of the GAZETTE. —F. W. ANDERSON, *Great Falls, Montana.*

Celery Leaf Blight (*Cercospora Apii* Fres.)—This disease annually destroys about one half of the celery planted in this section; last year (1886) the loss occasioned by the parasite was not so great as in former years, owing, no doubt, to the dry weather which prevailed in this section. Frequent showers and heavy dews followed by hot sunshine favors the growth of the fungus. The fungus usually appears in this section about the first of July, and at the approach of cool weather, which usually comes on in September, the fungus gradually disappears. When fresh the conidia germinate readily (in three hours) by sending out a delicate, colorless thread from each cell. So long as the celery leaves are kept dry but few of the conidia germinate, but if the leaves are frequently moistened the fungus quickly destroys them. Celery protected from the direct rays of the sun, either by natural means, as planting under trees, or by screens made for the purpose, is rarely attacked by the parasite.

On September 26, 1886, several healthy celery plants that were growing in the open air were lifted and planted in the green-house. About one week later sowings of the conidia of C. Apii were made upon the leaves of several plants. Fifteen days later the leaves where the sowings had been made showed the pale green pustules which always appear just before the hyphæ and conidia become visible. Owing to the cool weather which came on about the time the pustules made their appearance, the